

## **National Motorsport Academy Pulls Back the Curtain on Modern Motorsport Engineering Education During EPARTRADE Race Industry Now Webinar**

The future of motorsport engineering is increasingly digital, simulation-driven, and globally connected. During a recent episode of EPARTRADE's Race Industry Now webinar series, the National Motorsport Academy (NMA) delivered an in-depth look at how online education is preparing the next generation of race engineers for the realities of modern motorsports.

Titled "Building Race Engineers: Inside the Life of an Online Motorsport Engineering Student," the webinar featured Bob D'Amato, Chief Technical Officer at Holman-Moody and NMA alumnus, alongside Wayne Gater, Deputy Director of the National Motorsport Academy. The session was hosted by Brad Gillie from SiriusXM, Ch. 90, Late Shift.

Far from a generic overview of online learning, the discussion focused heavily on the technical structure of NMA's motorsport engineering curriculum, the software tools being used by students, and the evolving demands placed on engineers throughout the racing industry.

### **Motorsport Engineering Education Designed Around Real-World Applications**

One of the strongest themes throughout the webinar was NMA's focus on industry realism.

Unlike traditional lecture-heavy university programs, NMA structures much of its curriculum around assignment-based learning tied directly to real motorsport engineering scenarios. Students are expected to work through practical engineering problems, complete technical reports, run simulations, and interpret race engineering data much like they would inside an actual race team environment.

Wayne Gater explained that the academy intentionally mirrors the workflows and pressures students will encounter in professional motorsport.

"We're trying to give that real feel of motorsport and make it transferable to people's real-world experiences," Gater explained during the webinar.

The academy's Bachelor of Science program spans three years and covers a wide range of engineering disciplines including:

- Race car design and preparation
- Vehicle dynamics
- Aerodynamics

- Engine simulation
- Fluid mechanics and thermodynamics
- Mechanical engineering fundamentals
- Data analysis and telemetry interpretation
- Motorsport work experience projects

The structure is intentionally progressive. Students begin with core engineering and mathematics foundations before advancing into highly specialized motorsport-focused technical disciplines.

### **Heavy Emphasis on Simulation and Data Engineering**

For technically focused viewers, one of the most compelling sections of the webinar centered around the engineering software and simulation platforms integrated into the curriculum.

Gater detailed how students work with professional-grade engineering tools commonly used throughout the motorsport industry.

For engine development and powertrain simulation, students utilize GT-SUITE from Gamma Technologies, allowing them to model and simulate engine systems virtually before physical components are manufactured.

The approach reflects how modern race teams increasingly rely on simulation-driven development to reduce cost, improve efficiency, and accelerate design cycles.

“We’re designing engines in the virtual world instead of going out and manufacturing them and spending a lot of money finding out whether we’ve done it right or wrong,” Gater explained.

The curriculum also dives deeply into chassis dynamics and data engineering.

Students work with ChassisSim software to study suspension geometry, chassis behavior, and vehicle dynamics under varying operating conditions. Real-world telemetry data is incorporated into simulations, giving students exposure to the same types of workflows used by professional engineers at the track.

The webinar also highlighted the use of professional motorsport data analysis platforms including:

- MoTeC
- Pi Toolbox
- Vehicle dynamics analysis tools
- Telemetry correlation software

The emphasis on simulation correlation and data interpretation reflects the broader direction of professional motorsport engineering, where data science and virtual development have become central pillars of competitive performance.

### **Building Engineers for a Global Motorsport Industry**

Another major focus of the discussion was accessibility.

NMA operates as a fully online motorsport engineering academy, allowing students from around the world to pursue advanced technical education while remaining active in racing careers, workshops, or engineering roles.

According to Gater, flexibility is one of the academy's greatest strengths.

Unlike traditional campus-based programs tied to rigid academic schedules, NMA is structured to support working professionals already embedded within the industry.

That flexibility is especially important in motorsports, where race schedules, travel demands, and seasonal workloads often make traditional university attendance difficult.

The online format also enables students to immediately apply classroom concepts directly to race cars and projects they may already be involved with professionally.

Rather than separating theory from practice, the academy encourages students to connect coursework with live engineering problems.

### **Bob D'Amato's Journey From Student to CTO**

The webinar also provided a firsthand perspective through Bob D'Amato, who discussed how the NMA program helped strengthen and formalize his engineering skill set throughout his career.

Today, D'Amato serves as Chief Technical Officer at Holman-Moody, one of the most historic names in American motorsports engineering.

Throughout the discussion, D'Amato emphasized the importance of continuous education in an industry where engineering technology evolves rapidly.

Topics such as simulation, data engineering, aerodynamics, and systems integration are now deeply interconnected across all forms of motorsport, making multidisciplinary understanding increasingly valuable.

The conversation reinforced how modern race engineers are expected to move fluidly between mechanical systems, software analysis, telemetry interpretation, and virtual development environments.

### **The Modern Race Engineer Is Increasingly Digital**

A recurring message throughout the webinar was that motorsport engineering is no longer limited to fabrication shops and dyno rooms.

Modern race engineering now involves:

- Simulation-driven development
- Computational analysis
- Telemetry engineering
- Virtual testing environments
- Data acquisition and interpretation
- Integrated software workflows
- Correlation between virtual and physical testing

NMA's curriculum appears intentionally aligned with these industry shifts.

Rather than teaching engineering strictly from a theoretical perspective, the academy is training students to operate inside the increasingly data-centric ecosystem of modern motorsports.

That includes exposing students to the same engineering methodologies used by professional race teams competing at high levels across circuit racing, endurance racing, stock car racing, and open-wheel competition.

## **A Look Into the Future of Motorsport Education**

The webinar ultimately showcased how motorsport education itself is evolving.

As engineering tools become more software-driven and globally accessible, online technical education platforms like the National Motorsport Academy are helping bridge the gap between academic theory and practical motorsport application.

For aspiring engineers already working in racing — or professionals looking to expand their technical capabilities — the combination of flexible online delivery, real-world engineering projects, and advanced simulation tools offers a pathway that closely mirrors the realities of the modern racing industry.

The session also highlighted a broader trend within motorsports: the growing importance of engineers who can com

For more information, [watch the full webinar here.](#)